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WARNING: Since we have no control over equipment or data which may be used with this program, no responsibility is implied or assumed for results obtained through its use. Input data and results may be incorrect or wrong. Therefore the use of this data for loading ammunition can cause serious injury to personnel and material. The computer-results had to be checked against data available in current loading manuals.

**LOT-TO-LOT VARIATIONS OF POWDERS, PRIMER SUBSTITUTION AND COMPONENT CHANGE OFTEN RAISE PRESSURES TO UNSAFE LEVELS. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS DATA FOR LOADING PURPOSES.**

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<b>User Data:</b>	<b>Date:8-Apr-2015</b>	<b>Time:22:06:16</b>	<b>File: xpert 243 wssm 68 gr.dat</b>	
<b>Cartridge / Caliber</b>	<b>.243 WSSM</b>	<b>Bullet</b>	<b>.243, 68, XPERT Bullet</b>	
Maximum Average Pressure, allowed	64542 psi.	4450 bar (Piezo CIP)	with flatbase	
Groove Caliber	0.243 in.	6.17 mm	Bullet Weight	68.0 gr. 4.41 gm
Case Capacity, overflow	53.91 gr. H2O	3.5 cm <sup>3</sup>	Bullet Length	1.031 in. 26.2 mm
Case Length	1.663 in.	42.24 mm	Bullet Seating Depth	0.431 in. 10.95 mm
Cartridge O.A. Length	2.264 in.	57.51 mm	Barrel/Tube Length	24.0 in. 609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.04535 in. <sup>2</sup> 0.2926 cm <sup>2</sup>
<b>Propellant type</b>	<b>Somchem S365</b>			
Charge Weight	46.0 gr.	2.981 gm	Load Density	237.7 gr./in. <sup>3</sup> 0.940 gm/cm <sup>3</sup>
Heat of Explosion, Potential	238.8 J/gr.	3685 J/gm	Energy Density of Charge	56748 J/in. <sup>3</sup> 3463 J/cm <sup>3</sup>
Propellant Solid Density	404.63 gr./in. <sup>3</sup>	1.6 gm/cm <sup>3</sup>	Used Ratio of Specific Heats cp/cv	1.239
Burning Rate Factor Ba	0.44 1/s		Weighting Factor	0.5
Burning Function Limit Z1	0.605		Prog.-/ Degressivity Factor a0	1.715
Factor b	2.271		Bulk Density	231.4 gr./in. <sup>3</sup> 0.915 gm/cm <sup>3</sup>

**Calculated and Estimated Data:**

Bullet Shank Seating Depth	0.431 in.	10.95 mm	Capacity Displaced by Seated Bullet	0.02 in. <sup>3</sup>	0.328 cm <sup>3</sup>
Useable Case Capacity	0.1935 in. <sup>3</sup>	3.172 cm <sup>3</sup>	Bullet Travel at Muzzle Exit	22.77 in.	578.31 mm
Loading Ratio("Density") / Filling	102.7 % = compressed		Charge Fraction Burnt at Shot Start	1.25 %	

**Predicted Data:**

Maximum Chamber Pressure	48842 psi.	3368 bar	Bullet Travel at Pmax	2.75 in.	69.9 mm
<b>at Muzzle Exit:</b>					
Bullet Velocity	3530 fps.	1076.0 m/s	Pressure at Muzzle	10668 psi.	736 bar
Bullet Energy	1881 ft.lbs.	2551 Joule	Bullet Barrel Time	1.069 ms	
Propellant Burnt	99.4 %		Ballistic Efficiency	23.2 %	

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !  
 Real maximum (peak) of pressure is reached while bullet moves within barrel.  
 End of combustion occurs after the bullet's base passes muzzle.

